CHAPTER 2

QUANTITATIVE RESEARCH

At the end of Phase I, EPA, in consultation with CLI Partner and Task Force members, concurred with the recommendation that quantitative research in Phase II would be valuable to better understand consumers' preference for, comprehension of, and satisfaction with current product labels. A quantitative approach was favored because it was necessary to obtain statistically sound data to support the findings from the earlier qualitative research. Furthermore, unlike qualitative research data, quantitative research data are representative of the study population and projectable to the entire population. Quantitative research was also used to determine the prevalence of particular opinions on a given issue expressed in the qualitative interviews. Additionally, quantitative research was appropriate for measuring both attitudes and behavior of consumers to current and new product labels. Demonstrating their support for this concept, the CLI Partners volunteered to fund and direct this research, which they felt would be of use even beyond the CLI. Quantitative research also provides a baseline that can be surveyed periodically to determine changes in attitude and behavior.

The Phase II quantitative consumer research was designed to assess consumer comprehension, attitudes, behavior and satisfaction with labeling and to evaluate labeling alternatives (for both registered and non-registered products) in the outdoor pesticide, indoor insecticide, and hard surface cleaner categories. The quantitative survey was organized along the six learning objectives identified by the CLI Partner and Task Force members at the beginning of Phase II. These learning objectives are as follows:

Quantitative Learning Objectives

Determine the current situation relative to consumers' satisfaction with the format and content of existing labels;

Determine consumers' hierarchy of importance of basic label information;

Determine where on the label consumers expect to find particular information, such as First Aid and ingredients;

Determine consumers' current comprehension of label language;

Determine whether or not a preference exists for non-FIFRA over FIFRA labels (for household cleaner category only); and

Determine consumers' reaction to standardized safe use, environmental, health and safety information.

Each learning objective was intended to generate research findings that would enable the EPA and CLI Stakeholders to take immediate and short-term steps toward label improvements. Some changes, such as revised guidance and regulations, are almost entirely under the purview of the EPA. Other changes are entirely within the purview of the product marketers but may be subject to EPA label approval. Others, such as consumer education, involve many Stakeholders and would be implemented over a longer time period. The results of the quantitative research were expected to lead to certain actionable steps, such as:

- quantify key learnings from the qualitative research in Phase I of CLI;
- collect data that will serve as input into additional quantitative research, such as consumer evaluation of potential new label formats;
- benchmark current consumer practices and preferences, so that changes in behavior/preference (based on label changes) can be assessed;
- provide information that will allow the EPA and its Partners to consider policy implications and to take some immediate action steps;
- guide the Consumer Education Subgroups's efforts;
- guide the Storage and Disposal Subgroup in making recommendations; and
- provide information for potential changes to label formats.

Strategy for the Quantitative Research

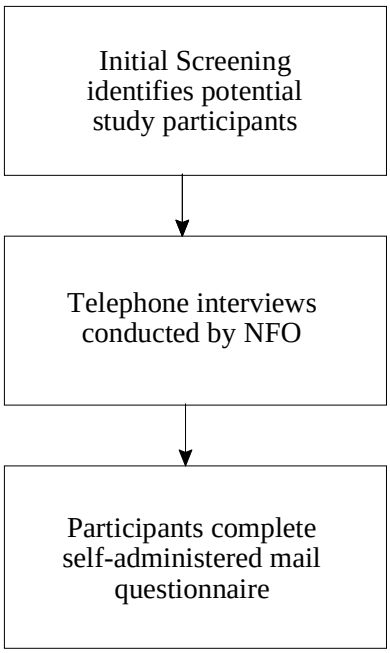
The design and implementation plan of the quantitative research was developed by the Research Core Group, consisting of EPA personnel, industry and trade association Partners, people from other federal and state agencies, and other interested CLI Stakeholders. The Core Group began, by addressing the learning objectives identified at the beginning of Phase II by CLI Partner and Task Force members, to develop the quantitative screening and survey questionnaires. Several of the members of the research group were market researchers in their own organizations and, therefore, had extensive experience with survey design. The quantitative research was voluntarily undertaken and funded by industry and trade association Partners of CLI including: AgrEvo Environmental Health; American Cyanamid (American Home Products); Bayer Corporation; the Chemical Specialties Manufacturers Association (CSMA); Dow AgroSciences; FMC; Reckitt & Colman; S.C. Johnson & Son, Inc.; The Procter and Gamble Company; The Clorox Company; Purcell Industries, Inc.; Riverdale Chemical Co.; SC Johnson; The Andersons, Inc.; The Scotts Co.; Solaris (Monsanto); United Industries Corporation; and the RISE (Responsible Industry for a Sound Environment). This group of companies hired an independent survey research firm, National Family Opinion (NFO) Research, Inc. to implement the study.

During Phase II, the Core Group met on a weekly basis via telephone conference calls, and occasionally in ad hoc face-to-face meetings, to discuss the development of the survey instruments, the implementation of the survey itself, and interpretation of the data once the results of the survey were available. In July 1998, a smaller subgroup of the Core Group met in Washington, D.C., to discuss the survey data in detail and establish some of the preliminary findings from the survey results. This smaller group consisted of EPA Task Force members, and market researchers from Amway Corporation; Bayer Corporation; S.C. Johnson and Son, Inc.; and the Procter and Gamble Company. In August, the subgroup finalized the preliminary findings and prepared data tables to illustrate these conclusions. In September 1998, the subgroup presented these results at the Partner and Task Force meeting in Alexandria, VA.

Quantitative Study Design

The quantitative study consisted of three parts: an initial screening (to identify potential study participants), followed by telephone interviews and a self-administered mail questionnaire among those selected to participate in the main portion of the quantitative study.

The Three Parts of the Quantitative Study Design



Screening to Identify Product Category Users for Use in the Study

In the first part of the quantitative phase of the study, a postcard with a very short screening questionnaire (screener) was mailed to members of the NFO Panel.[2]

[2] Consumers were screened from NFO Research's consumer panel of 550,000 households. The panel of 550,000 was randomly chosen from the population as a whole. The NFO panel consumers have agreed in advance to participate in marketing research studies. When households become members of the NFO panel, they provide a large amount of demographic information about their household (e.g., age and gender of household members, household income, household size, education and employment information on the male and female heads of household, and many other types of information). This large database of pre-recruited households allows NFO Research to:

- easily find households which are willing to participate in marketing research studies, particularly those that are longer and more complex in nature;
- design the sample (i.e., determine which households are chosen to participate in the study) in a way that ensures that the demographic make-up of participants (and thus the results) are representative of the U.S. population as a whole; and
- eliminate the need to collect a series of demographic information from each respondent, since the panel database already contains a large amount of demographic information for each panel household.

The screener contained questions to identify consumers eligible for participation in the main portion of the quantitative study (and to eliminate those consumers not eligible for participation). Screener questions asked respondents the following:

- Whether any household member used a household cleaner in the past 12 months. For those who indicated usage of a household cleaner, the age and gender of the household member who is the primary user of household cleaners;
- Whether any household member used an indoor insecticide in the past 12 months. For those who indicated usage of an indoor insecticide, the age and gender of the household member who is the primary user of indoor insecticides;
- Whether any household member used an outdoor pesticide in the past 12 months. For those who indicated usage of an outdoor pesticide, the age and gender of the household member who is the primary user of outdoor pesticides; and
- Whether the respondent had gone to the store to purchase each of the three types of products, but did not because of information contained on the label of the product.

In March 1998, the screening postcard was mailed out to a total of 10,000 NFO consumer panel households. The distribution of recipients who received this postcard was balanced to be representative of the U.S. population as a whole on age and gender of the head of household, geographic region, household size, market size, and household income. An additional 2,250 postcards were mailed out to households from three low incidence groups of interest (minority, lower formal educational level, lower income) on NFO's panel of 550,000, to ensure adequate representation in the final survey results. These low incidence groups were also balanced to be representative of their counterparts in the overall U.S. population. In April 1998, returns were closed out and the returns tabulated. A total of 8,447 households returned the postcard (69% of the number sent out). These results were then used to determine which households and which individuals to include in the main portion of the CLI quantitative study (i.e., phone and mail questionnaires) for appropriate demographic representation. Appendix 2-1 contains the screening questionnaire.

Non-User Results

As stated above, non-users (in the past 12 months) were excluded from the main portion of the quantitative study. It must be noted that among the group of consumers who said on the screener that they had not used the specific products in the past 12 months (and were thus ineligible for inclusion in the main portion of the study), a small number also indicated on the screener that they went to the store to buy such a product, but did not purchase it because of information on the package (6% of those who did not purchase household cleaners, 7% of those who did not purchase indoor insecticides, and 5% of those who did not purchase outdoor pesticides). The information on the package cited as the reason consumers did not buy the product was not specified. It cannot be determined, therefore, what biasing impact, if any, was created by excluding these consumers from the study. Based on the low number of consumers who were excluded (between 5% and 7% of non-users for each category), it is unlikely that any such biases would alter the survey findings in any meaningful way.

Sample for the Telephone Interviews and Mail Questionnaire

For each product category, a group was formed of participants who indicated that they had used that type of product in the past 12 months. Additionally, supplemental samples of low-income households (i.e., those making less than $10,000 per year), less educated heads of household (i.e., those with less than high school education), and minorities were drawn for all three categories, and a supplemental sample of fogger users was also drawn for the indoor insecticides category. These additional samples were needed because the overall incidence of these groups in the U.S. population is so low that there would not be enough members of these groups in the nationally representative sample to allow for meaningful quantitative analysis of these particular groups.

These supplemental groups (i.e., supplemental samples) were included only for analyses that looked specifically at the group for which the supplemental sample was pulled. For example, the respondents who were part of the supplemental group for low-income households were included only in the separate analysis of consumers from low-income households. Excluding these special supplemental groups of respondents from other groups (e.g., the nationally representative sample) prevented the creation of an unnatural skew toward over-representing consumers from those groups for which a supplemental sample was pulled. It is important to note that, due to random selection, there are still members among the nationally representative sample who fall into the demographic groups for which supplemental samples were pulled.

The samples for each product category were balanced to be representative of the portion of the U.S. population that uses that particular category (i.e., household cleaners, indoor insecticides, outdoor pesticides). The samples were balanced on the following demographic variables:

- age of user,
- gender of user,
- household income,
- household size,
- market size, and
- geographic region.

The self-administered mail questionnaires were mailed out to a total of 6,438 households, broken down as follows:

Nationally representative sample of category users:	
All categories	1,775 per category

Supplemental Samples				
	Low-education heads of household	**Low-income households**	**Minority households**	**Fogger users**
Indoor insecticides	102	122	77	144
Household cleaners	102	124	90	N/A
Outdoor pesticides	108	132	112	N/A

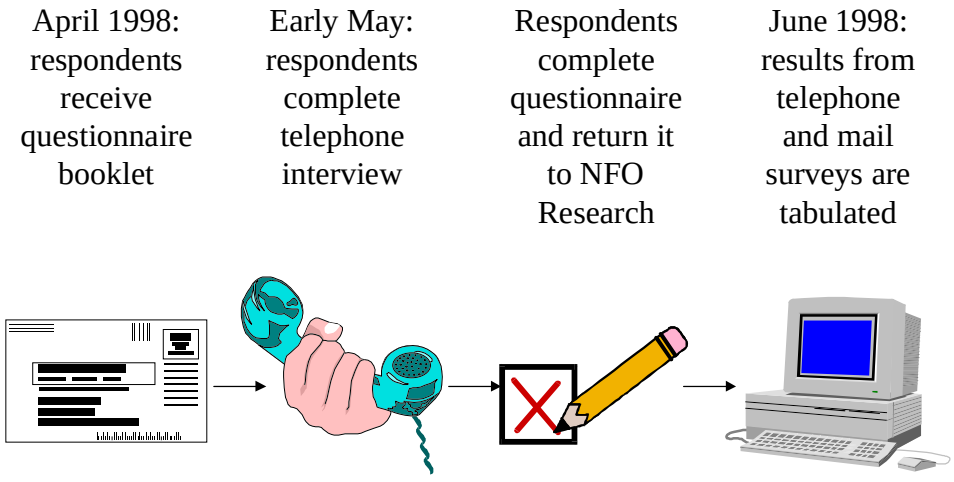
When survey returns were closed in early June 1998, a total of 3,234 consumers (50% of the total sent out) completed both the telephone and mail portions of the study, with approximately 850 to 900 being nationally representative users of each of the three product categories. As appropriate, the remainder of returns were used to supplement the various low incidence groups.

Telephone and Mail Questionnaires

The main portion of the CLI quantitative study was composed of 1) a telephone interview, followed by 2) a self-administered 8-page mail questionnaire. The telephone interview was used to collect information that would have been difficult to collect without direct interaction with an interviewer (e.g., having the respondent state where certain label sections were located). Telephone interviewers also allowed for clarifications and follow-up probing of responses regarding comprehension. Questions on the phone survey were rotated so that any order bias or "question fatigue" would be avoided. The mail questionnaire was used to collect a large amount of detailed information that could not be collected over the telephone due to time (i.e., length of interview) considerations. The telephone interview also asked consumers for "top of mind" responses to mimic actual consumer behavior (e.g., exercise of choices and capabilities) when they encounter the label both in the store and at home.

There were three different versions of the survey: one for household cleaning products, one for indoor insecticides, and one for outdoor pesticides, with the bulk of questions being identical on all three. In April 1998, participants were sent *one* version of the questionnaire booklet, along with a letter of instruction and a "mock" label (for use in both the phone and mail portions of the study). The mock label was representative of a typical product label for the product category for which respondents were selected. Participants were instructed to await a telephone call before completing the self-administered mail questionnaire. After allowing time for mail delivery, respondents were contacted by phone in early May and asked to complete a 10-minute telephone interview (average time), with responses collected using a computerized telephone questionnaire. After completion of the telephone survey, respondents were then instructed to complete the 8-page mail questionnaire and return it to NFO Research. After one month for completion and return of the self-administered mail questionnaire, returns were closed in early June 1998, and all results from the telephone and mail surveys were then tabulated. Only results from those completing both the telephone and the mail portions of the survey were included in the final results.

Procedure for Telephone and Mail Questionnaires



Survey Questionnaires and Learning Objectives

The telephone and mail survey instruments were designed by the Core Group (quantitative research group) to address the learning objectives outlined at the beginning of this chapter. The learning objectives, questions from each questionnaire relating to that learning objective, and the *potential* action steps emerging from these questions are provided in Table 2-1.

In addition to the learning objectives, the Core Group developed the survey instruments to investigate consumer attitudes, behaviors, and understanding related to specific areas and issues, including:

- *Consumer Education* — What other sources of information, besides the product label, do consumers turn to for information about the product?
- *Product Ingredients* — Do consumers understand the ingredient listing on products and know how to use this information?
- *Signal Words* — Do consumers understand the signal word hierarchy for CAUTION, WARNING, and DANGER?
- *Storage and Disposal* — What are consumers' current storage and disposal practices?
- *Precautionary Statements* — What are consumers' understanding and use of precautionary statements?

Telephone Interview Outline

The telephone interview questionnaire used "mock" labels to ask questions related to consumers' comprehension of and ease of finding information on the labels. More specifically, the telephone questionnaire tested respondents' ability to locate key sections of the label, the accuracy with which respondents were able to locate these sections, and their opinions on the ease of finding these sections. Respondents also were asked what they thought certain language on the label meant, including specific key words and phrases. Finally, the telephone survey asked several demographic questions. (See Appendix 2-2 for copies of the phone questionnaires, and Appendix 2-3 for the mock labels.) Each interview was conducted by trained interviewers from NFO Research, Inc., and lasted approximately 10-12 minutes. At the conclusion of the telephone interview, the interviewer instructed the respondent to complete the written questionnaire in his or her own time and mail it back to NFO Research, Inc., once completed.

Table 2-1: Learning Objectives, Survey Questions, and Potential Action Steps		
Learning Objective	**Questions Relevant to the Learning Objectives Addressed the Following:**	**Potential Action Steps**
1) Determine current satisfaction with the format and content of existing labels	**Telephone:** • ease of locating key label sections **Mail:** • overall satisfaction with the current label • likes and dislikes of label sections	If current labels are not meeting consumers' needs, provide general input on which sections need further revisions. Level of consumer dissatisfaction indicates strength of motivation for change, thus determining focus and degree of difficulty for education effort.
2) Determine consumers' hierarchy of importance of basic label information 3) Determine where on the label consumers expect to find label information	**Telephone:** • ease of locating key label sections **Mail:** • where and how often consumers read sections of labels • information on labels that are the most and least important • where consumers expect to find information on labels, and which information they want to find most easily • where consumers expect to find recycling icons	Make format recommendations, such as organizing information when needed in the store, before use, or in case of emergency.
4) Assess consumers' comprehension of current label language	**Telephone:** • comprehension of language by label section **Mail:** • meaning of the recycling icons • likes and dislikes about label sections	1. Identify terminology that consumers find difficult to understand. 2. Recommend additional qualitative work with consumers to understand what terminology should be used, as appropriate. 3. Recommend word changes (limited).
5) Determine preference of FIFRA versus non-FIFRA labels (for household cleaner category only)	**Mail:** • like and dislikes about label sections • consumers' preference for FIFRA and non-FIFRA labels • paired preference statements	1. Quantify whether non-FIFRA label is preferred to FIFRA language. 2. Make word changes where possible. 3. Make format recommendations, such as organizing information when needed in the store, before use, or in case of an emergency.
6) Solicit consumers' reactions to standardized information on safe use, environmental, and health information	**Mail:** • most and least important information to consumers • where consumers expect to find information on a label, and which information they want to find most easily • where and how often consumers read sections of the label	1. Provide direction on the types of information that could be standardized. 2. Make format (location) recommendations.

Mail Questionnaire Outline

The mail questionnaires (see Appendix 2-4) were designed to address the following specific questions:

- respondents' overall satisfaction with current labels;
- when (i.e., in the store or right before use) and how often respondents read label sections;
- if they do not read the label, why not;
- most and least important information to respondents;
- where respondents expect to find information on a label, and which information they want to find most easily;
- respondent likes and dislikes about product label sections;
- other sources (besides the label) for product information;
- meaning of recycling icons, including what actions respondents think the icons are asking them to take, and where they expect to find these icons on the product packaging;
- respondent preference for FIFRA versus non-FIFRA labels (for household cleaning product category only);[3]
- respondent preference for FIFRA language and alternate wording;
- respondent attitude toward reading product labels; and
- respondent habits and practices, such as: products used; accident experience; current storage, disposal, and recycling practices; and the incidence of product category use and non-purchase due to confusion about the label.

[3] Pesticides, disinfectants, and antimicrobial cleaners are subject to labeling requirements under FIFRA. Other products (i.e., in the case of products covered by CLI, non-disinfectant and/or antimicrobial household cleaners), are governed by other authorities. In the cleaner category, therefore, product labels are markedly different, depending on whether FIFRA or a different statute applies, even through the products in the bottle may be similar. For the CLI quantitative research, respondents in the household cleaners category were presented with a FIFRA and a non-FIFRA label to determine how each was perceived.

Quantitative Research Data

National Family Opinion Research completed collection of the survey responses and data tabulation during the months of June and early July[4]. In the final count, the total number of responses received for the mail and the telephone surveys were as follows:

- Household Cleaners — 894 completes;
- Outdoor Pesticides — 846 completes; and
- Indoor Pesticides — 889 completes.

Statistical Testing of Data

When comparing different groups of data quantitatively, statistical tests are needed to help determine which data are meaningful and which are not. A two-tailed t-test, which compares the percentages or means of interest and the sample sizes, was used to determine whether differences existing among groups are significant on a statistical level.

This type of statistical testing is done based on the level of significance desired. Data are most frequently tested for significance at levels between 80% and 95%. The higher the level of statistical testing performed, the more likely it is that data differences detected in the study reliably reflect differences in the "real world." If a significant difference between two data points at the 95% confidence interval is found to exist, this means that the same study, if conducted 100 times, would show a significant difference reflected in its data at least 95 of those times. For the CLI study, data were tested at the 95% confidence level. In the raw data tables, significance was routinely tested. For each question asked, the mean, standard deviation, and standard error are also shown for each type of respondent.

Breakdown of CLI Data

The Core Group determined that it would be important to investigate whether significant differences existed among various groups of respondents. To this end, the raw data were broken down by various demographic categories and by ways in which respondents answered several key questions. These breakdowns were necessary so that analysis and comparisons could be made among different groups that responded to the questionnaire. For example, the gender category allowed the Core Group to determine if there is any significant difference between the numbers of males and females who read information on product labels. A total of seven demographic categories were made for the CLI study as follows:

- gender (male, female);
- household income (less than $10,000; $10,000-$24,999; $25,000-$49,999; and $50,000 or greater);

[4] A complete set of the quantitative data may be found in the EPA's Public Docket, Administrative Record AR-139. The availability of the data for public review was announced in a *Federal Register (FR)* notice (63 FR 57298, October 27, 1998).

- respondent education level (less than high school, high school graduate, and some college level education);
- minority status (yes, no);
- age of respondent (18-34, 35-54, and 55 or older);
- presence of children in the household (yes, no);
- dog/cat ownership (yes, no); and
- overall satisfaction level expressed with the label for that category, as indicated on the mail questionnaire.

In addition, seven categories were made to compare the ways in which respondents answered key questions of interest for the Core Group's analysis, as follows:

- frequency with which labels are read (respondents who read label section "occasionally or every time," or those who "do not read label sections occasionally or every time");
- ability to correctly identify most sections (respondents who were able to correctly locate label sections and those that could not correctly locate label sections two or more times);
- whether or not respondents looked for information about ingredients (respondents who said that they looked for ingredient information and those that said that they did not look for this information);
- preferred ingredient format (respondents' preference for four different ingredient information presentation options (for details on these options, refer to question 4c on mail questionnaires in Appendix 2-4);
- whether or not respondents looked for information about harmful effects of the product (respondents who said that they look for information on a label on the harmful effects of a label, and those that said that they did not);
- preferred labeling format (respondents who answered that they would "make no change to the current label format," those that said they would like to see "headings to highlight key facts," and those that said that they preferred the suggested "box format"); and
- geographic region (indication of where respondents were from for use by the Storage & Disposal Subgroup to see how respondents from states with strong household hazardous waste management programs ("strong HHW") answered questions in comparison to those respondents from other states ("other HHW")).

Data Precision

Based on a standard statistical measure for sample sizes of about 850 to 900 respondents, the data for the nationally representative sample of users for each of the three product categories are accurate to ± 3½% at the 95% confidence interval. This means that if the study were conducted 100 times and 50% of respondents gave a certain response, 95 out of those 100 tests would yield a result for that response if given by between 46.5% and 53.5% of respondents. As percentages move towards the extremes (i.e., closer to 0% and 100%), the precision of these data points will actually be higher. It is important to note that these precision measures refer to specific data points, and not to differences between data points. Precision for groups with smaller sample sizes will be lower.

Quantitative Research Findings and Implications

The raw data tabulations were analyzed by the Research Core Group for several reasons:

- to discover what *overall findings,* or observations, could be made from the quantitative data about consumers' comprehension, attitudes, behavior and satisfaction with labeling;
- to identify the *implications,* or connections, among the various findings related to a learning objective or topic area; and
- to evaluate labeling alternatives (for both registered and non-registered products) in the outdoor pesticides, indoor insecticides, and hard surface cleaner categories.

The Core Group hoped to be able to organize the findings in accordance with the learning questions and the topic areas studied in the quantitative research. Once in-depth analysis began, however, it became evident that the data leading to the findings were not clear-cut, but in fact overlapped with one or more of the learning objectives and topic areas.

Wherever possible in this report, findings and implications have been organized according to topic area. Data charts and tables follow the findings that they support; most charts are presented in both graphic and numerical formats. Implications of the findings are provided following the findings from which these have been drawn.

Learning Objectives and Topic Areas

The quantitative survey was designed to address six learning objectives identified by the CLI Partner and Task Force members at the beginning of Phase II.

Quantitative Learning Objectives

Determine the current situation relative to consumers' satisfaction with the format and content of existing labels;

Determine consumers' hierarchy of importance of basic label information;

Determine where on the label consumers expect to find particular information, such as First Aid and ingredients;

Determine consumers' current comprehension of label language;

Determine whether or not a preference exists for non-FIFRA over FIFRA labels (for household cleaner category only); and

Determine consumers' reaction to standardized safe use, environmental, health and safety information.

In addition to the learning objectives, the quantitative study also focused on the following topic areas:

Specific Topic Areas Addressed by the Quantitative Research

Consumer Education — What other sources of information, besides the product label, do consumers turn to for information about the product?

Product Ingredients — Do consumers understand the ingredient listing on products and know how to use this information?

Signal Words — Do consumers understand the signal word hierarchy for CAUTION, WARNING, and DANGER?

Storage and Disposal — What are consumers' current storage and disposal practices?

Precautionary Statements — What are consumers' understanding and use of precautionary statements?

Findings and Implications

Terminology

Findings are observations resulting directly from the quantitative survey results and are supported by the data.

Implications show connections among the various findings related to a topic or learning objective and are derived from consideration of the quantitative findings.

Findings on Respondents' Satisfaction with Existing Labels (Chart 2-1, Table 2-2)

In general, respondents expressed overall satisfaction with the product labels in the three product categories. However, when presented with specific alternate label formats or language preferences, they indicated a desire for specific changes.

Chart 2-1

HOW SATISFIED ARE YOU OVERALL WITH THE INFORMATION CURRENTLY AVAILABLE ON PRODUCT PACKAGING?

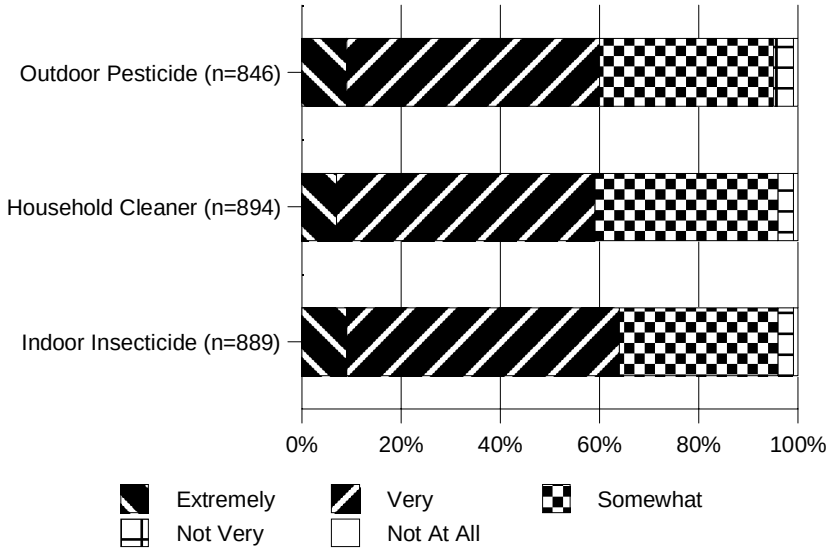


Table 2-2: How Satisfied Are You Overall With the Information Currently Available on Product Packaging? (%)					
	Extremely	**Very**	**Somewhat**	**Not Very**	**Not At All**
Outdoor Pesticide	9	51	35	4	1
Household Cleaner	7	52	37	3	1
Indoor Insecticide	9	55	32	3	1

(Base = All Respondents)

<u>Findings</u> on Respondents Comprehension of Existing Labels (Tables 2-3, 2-4, 2-5)

1. Overall respondents' comprehension of the label sections was high in all three product categories. A consistent exception to this finding is that over half of the respondents found the words in the ingredients section to be confusing.

2. The overwhelming majority of respondents for all three product categories said there were no confusing words or phrases in any of the various label sections. In the outdoor pesticides category, however, over one third said there were confusing words or phrases in the environmental hazards section.

3. In all three product categories, respondents preferred the alternative, revised statements over the existing label language, with only a few limited exceptions.

4. In each of the three product categories, comprehension of the label language was high, with just a few exceptions. However, there are noteworthy findings for Indoor insecticides and outdoor pesticide categories:

   - For *indoor insecticides* — nearly one-half of the respondents indicated that there was something confusing about the First Aid section of the label. A large majority of these respondents had difficulty with the phrase "gastric lavage is indicated if material is taken internally."

   - For *outdoor pesticides* — one-third of the respondents indicated confusion with the Environmental Hazards section. The phrase "This product is toxic to aquatic invertebrates" was mentioned most often as the source of this confusion.

5. Respondents were fairly definitive with regard to the preference for various statements tested related to household cleaners. In particular, each statement had two-thirds or more of the respondents preferring one alternative or the other. Please refer to the following table for a complete listing of statement preferences.

Table 2-3: Preference Statements for Household Cleaner Labels

% Preferring	Statement A	Statement B	% Preferring
66.8	For safe and effective use, read the label first	Use safely. Read the label before use	33.2
32.0	For safe and effective use, read the label first	Use only as directed on this label	68.0
87.4	Hazards to humans and animals	Effects on humans and animals	12.6
78.4	Environmental hazards	Effects on the environment	21.6
73.1	Avoid contact with eyes	Protect your eyes during application. Wear safety glasses.	26.9

6. While consumers exhibited strong preference for certain statements on indoor insecticide labels such as "Can be absorbed through skin" (97%) versus "Can be absorbed dermally" (3%), there was considerably less agreement on statements such as "Do not re-enter for X hours after application" (52%) versus "Allow X hours before re-entering treated rooms" (48%). Please refer to the following table for a complete listing of statement preferences.

Table 2-4: Preference Statements for Indoor Insecticide Labels

% Preferring	Statement A	Statement B	% Preferring
33.8	Repeat as needed	Apply no more than X treatments per week	66.2
24.5	Do not allow children or pet to contact treated areas	Keep children or pets out of treated areas for X minutes	75.5
41.7	For safe and effective use, read the label first	Use only as directed on this label	58.3
91.0	Hazards to humans and animals	Human and animal effects	9.00
85.5	Environmental hazards	Environmental effects	14.5
56.8	Avoid contact with eyes	Protect your eyes during application. Wear safety glasses.	43.2
48.0	Allow X hours before re-entering treated rooms	Do not re-enter for X hours after application	52.0
57.1	Use only in well-ventilated area	Open windows before use to provide free flow of air	42.9
30.4	Do not spray directly over food or utensils	Do not apply where spray may settle onto food or utensils	69.6
3.0	Can be absorbed dermally	Can be absorbed through skin	97

7. Consumers exhibited strong preferences for certain statements found on outdoor pesticide labels such as "Hazards to humans and animals" (96%) versus "Human and animal effects" (4%). There was considerably less agreement on statements such as "This pesticide can kill wildlife" (56%) versus "This pesticide is toxic to wildlife" (44%). Please refer to the following table for a complete listing of statement preferences.

Table 2-5: Preference Statements for Outdoor Pesticide Labels

% Preferring	Statement A	Statement B	% Preferring
35.0	Use safely. Read the label before use	Use only as directed on this label	65.0
96.3	Hazards to humans and animals	Human and animal effects	3.70
89.8	Environmental hazards	Environmental effects	10.2
6.10	Re-entry not allowed until sprays are dry	Do not re-enter treated area until spray has dried	93.9
27.9	Do not apply directly to water	Do not apply directly to lakes, streams, rivers, or ponds	72.1
14.5	Do not contaminate water when disposing of equipment washwaters or rinsate	Do not dump rinse water into sewers or other bodies of water	85.5
10.8	Do not contaminate water when disposing of equipment washwaters or rinsate	Do not dump leftover pesticide or rinse water into drains or sewers	89.2
3.90	Do not use where soils are permeable	Do not use where product may seep into ground water	96.1
11.7	Do not use where soils are permeable	Do not apply to sandy soils	88.3
44.2	This pesticide is toxic to wildlife	This pesticide can kill wildlife	55.8
41.0	This pesticide is toxic to wildlife and domestic animals	This pesticide may harm pets and wildlife	59.0
5.6	Do not apply when weather conditions favor drift from treated areas	Do not apply in windy conditions. Pesticides may drift away from application site	94.4
3.5	Pre-harvest Interval-allow X hours before picking or eating crops	Do not pick or eat garden crops for X hours after application	96.5
33.7	Drift or runoff may adversely affect fish and nontarget plants	Drift or runoff may unintentionally harm fish and plants	66.3
2.60	Phytotoxic to woody plants	Application may injure woody plants	97.4

Table 2-5: Preference Statements for Outdoor Pesticide Labels			
% Preferring	**Statement A**	**Statement B**	**% Preferring**
76.4	Wrap in paper and dispose of in trash	For information on safe disposal of unused product, contact a household hazardous waste program, or your local or state environmental agency	23.6
46.9	Do not apply where runoff can occur	Do not use on sloped areas when heavy rain is expected	53.1
22.3	Repeated contact may cause skin sensitization reactions in come individuals. Avoid contact with skin.	May cause skin allergies to develop. Avoid contact with skin	77.7

8. There were demographic differences in respondents' comprehension of the labels:
   - Respondents in higher income categories understood labels better.
   - Respondents at higher education levels understood labels better.
   - Respondents in the younger age categories understood labels better.

9. Ability to locate information on the label and comprehension of that information correlate positively with income and education and correlate inversely with age. This is true despite higher reported interest in label information among the elderly, less educated, and lower income participants in the survey.

10. Interest in specific information on labels (e.g., looking for information on harmful effects) correlates positively with understanding labels.

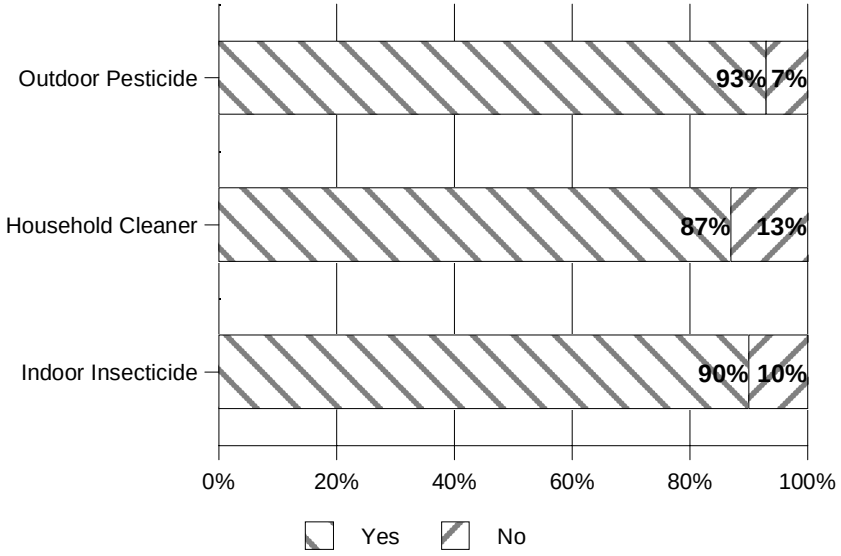
<u>Findings</u> on Respondents' Ease of Locating Information on Labels (Chart 2-2, Table 2-6, Table 2-7)

11. In all three product categories, an overwhelming majority of respondents indicated that the information on the label was where they expected it to be. Of those who did not find the information where they expected, the most popular suggestion was to put the ingredients on the back label. (For specific product information, see Charts 2-3 and 2-4 and Table 2-7.)

12. The information respondents found most difficult to locate on product labels were:
   - For *all three product categories* — where the product should not be used.
   - For *outdoor pesticides* — First Aid information and precautions to pets and the environmental effects for wildlife.
   - For *indoor insecticides* — precautions to personal health.

Chart 2-2

WAS ALL OF THE INFORMATION ON THE LABEL WHERE YOU EXPECTED IT TO BE?



(Base = All Respondents)

Table 2-6: Was All of the Information on the Label Where You Expected It To Be? (%)		
	Yes	**No**
Outdoor Pesticide	93	7
Household Cleaner	87	13
Indoor Insecticide	90	10

(Base = All Respondents)

Chart 2-3

ABILITY TO IDENTIFY EFFECTS
ON PERSONAL AND CHILDREN'S HEALTH OR SAFETY

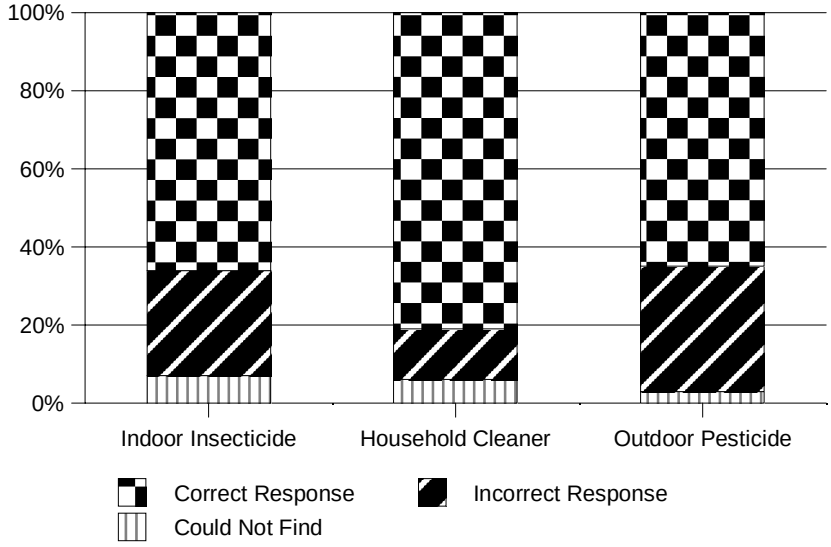


Table 2-7: Ability to Identify Effects on Personal and Children's Health or Safety (%)			
	Could Not Find	**Incorrect Response**	**Correct Response**
Outdoor Pesticide	3	32	65
Household Cleaner	6	13	81
Indoor Insecticide	7	27	66

(Base = All Respondents)

Chart 2-4

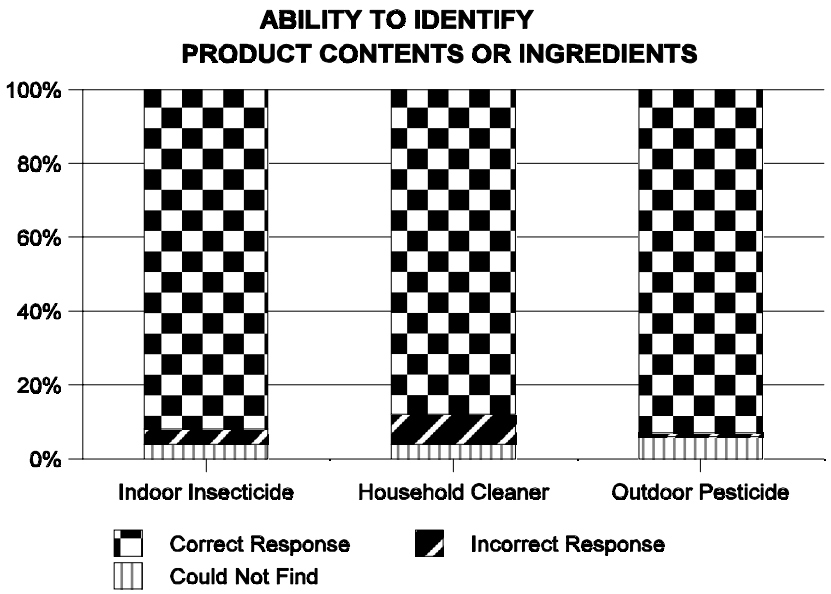


Table 2-8: Ability to Identify Product Contents or Ingredients (%)			
	Could Not Find	**Incorrect Response**	**Correct Response**
Outdoor Pesticide	6	1	93
Household Cleaner	4	8	88
Indoor Insecticide	4	4	92

(Base = All Respondents)

<u>Implications</u> Regarding Respondents' Comprehension of and Ease of Locating Information on Product Labels

A. There is a need to make certain label sections easier to find quickly.

B. There are ways in which label sections can be made easier to find quickly, read and comprehend.

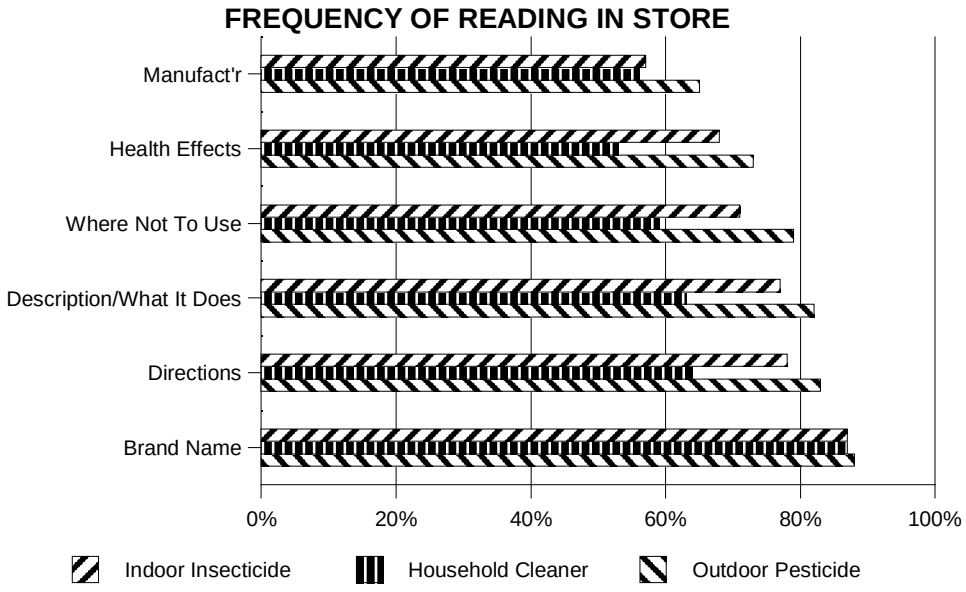
C. Most of the word and phrase revisions were preferred and would increase comprehension of the label.

<u>Findings</u> on Respondents' Hierarchy of Importance of Information on Product Labels (Chart 2-5, Chart 2-6, Table 2-9, Table 2-10, Table 2-11, Table 2-12, Table 2-13)

13. For all three product categories, the label information that respondents read in the store and before use included: brand name, directions for use, a description of what the product does, a description of where not to use the product, and precautions for the effects on personal and children's health.

14. The frequencies of reading labels were significantly higher among outdoor pesticides users followed by indoor insecticides users followed by household cleaners users. This is true for nearly all sections of the label.

Chart 2-5



(Base = All Respondents)

Table 2-9: Frequency of Reading in Store (%)						
	Brand Name	**Directions**	**Description/ What It Does**	**Where Not To Use**	**Health Effects**	**Manufacturer**
Outdoor Pesticide	88	83	82	79	73	65
Household Cleaner	87	64	63	59	53	56
Indoor Insecticide	87	78	77	71	68	57

Base = All Respondents

15. For the three product categories, respondents indicated that the following information is important, and they would like to locate it easily:

- Directions for use,
- Description of what the product does,
- Description of where not to use the product,
- Information about effects on personal and children's health (except for cleaners users), and
- Emergency information.

Table 2-10: What Information Found on the Packaging of Products Is Most Important to You?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Directions on how to use the product **80%**	Directions on how to use the product **83%**	Directions on how to use the product **85%**
Description of what the product does **69%**	Description of what the product does **72%**	Description of what the product does **73%**
Information about effects on personal and children's health or safety **49%**	Information about where the product should not be used **52%**	Information about effects on personal and children's health or safety **48%**
Information on what to do in an emergency or in case of an accident **45%**	Brand Name **49%**	Information about where the product should not be used **46%**
Information about where the product should not be used **42%**	Information on what to do in an emergency or in case of an accident **48%**	Information on what to do in an emergency or in case of an accident **35%**

(Base = All Respondents)

16. In all three product categories, respondents always indicated that the least important information to them on current labels was the positive environmental claims statements (e.g., contains no CFCs, contains no phosphates) and the name of the manufacturer. In all three product categories, respondents ranked label information about disposal, storage, ingredients, and a consumer information phone number as the least important.

Chart 2-6

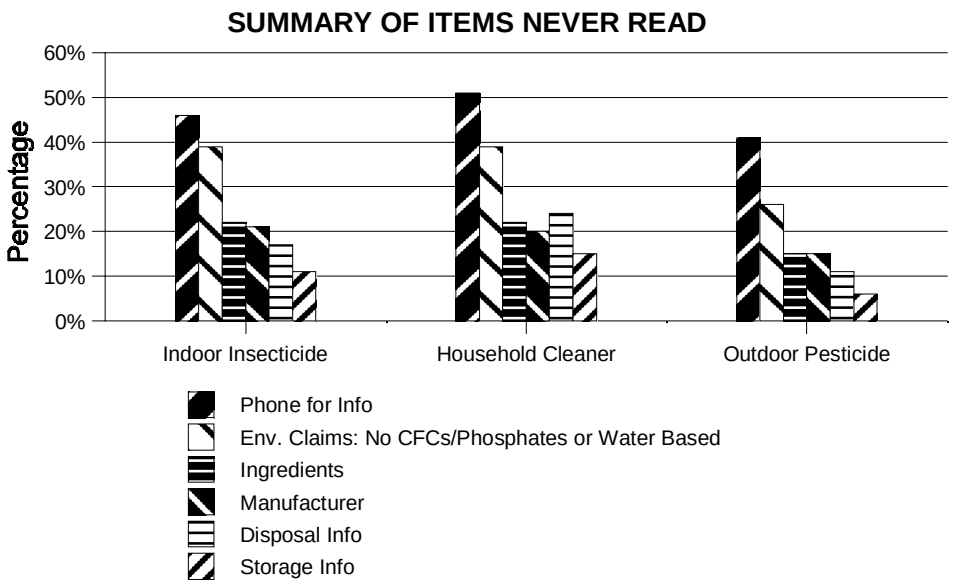


Table 2-11: Summary of Items Never Read (%)			
	Indoor Insecticide	**Household Cleaner**	**Outdoor Pesticide**
Phone for Info	46	51	41
Positive Environmental Claims: No CFCs/ Phosphates or Water Based	39	39	26
Ingredients	22	22	15
Manufacturer	21	20	15
Disposal Info	17	24	11
Storage Info	11	15	6

(Base = All Respondents)

17. For outdoor pesticides and indoor insecticides, respondents consistently indicated that they do not read or give importance to statements on environmental claims (e.g., contains no CFCs).

18. In all three product categories, there is a similarity between the label information perceived to be the most important and the information that respondents indicated that they wish to find most easily. The top three (in order of preference) are: (1) directions for use, (2) a description of what the product does, and (3) precautionary statements related to human health (please see Table 2-10).

Table 2-12: What Information Do You Want to Be Able to Find Most Easily?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Directions on how to use the product **69%**	Directions on how to use the product **72%**	Directions on how to use the product **76%**
Description of what the product does **57%**	Description of what the product does **61%**	Description of what the product does **63%**
Information on what to do in an emergency or in case of an accident **47%**	Information on what to do in an emergency or in case of an accident **49%**	Information about where the product should not be used **44%**
Information about effects on personal and children's health or safety **43%**	Information about where the product should not be used **44%**	Information about effects on personal and children's health or safety **43%**
Information about where the product should not be used **36%**	Information about effects on personal and children's health or safety **39%**	Information on what to do in an emergency or in case of an accident **41%**

(Base = All Respondents)

Table 2-13: When Deciding Which Product to Purchase, Which of the Following Types of Information, If Any, Do You Look for?

Indoor Insecticide	Household Cleaner	Outdoor Pesticide
Product characteristics, such as non-staining, non-corrosive, won't scratch surface, low odor, etc. **63%**	Product characteristics, such as non-staining, non-corrosive, won't scratch surface, low odor, etc. **81%**	Will not harm wildlife, pets, fish **52%**
Will not harm wildlife, pets, fish **56%**	Non-flammable **44%**	Low potential for harming plants **49%**
Non-flammable **42%**	Container or packaging characteristics **23%**	Low potential for contaminating ground water **48%**
Low potential for harming plants **41%**	No phosphates **17%**	Packaging allows for reduced contact with the product **40%**
Packaging allows for reduced contact with the product **33%**	No CFCs **13%**	Non-flammable **36%**

(Base = All Respondents)

***Implications* Regarding Respondents' Hierarchy of Importance of Information on Product Labels**

A. Consumers regularly looked for the information that they regard as important: the product purpose and personal precautionary information.

B. People want to be able to find information they regard as important quickly. Any modifications of the label should allow this information to be easily identifiable.

C. Respondents were less concerned about label information relating to storage and environmental issues, including disposal information, environmental claims, and environmental effects.

***Findings* on Label Format (Chart 2-7, Table 2-14)**

19. After being given a description of different formats, respondents in all three product categories preferred a box format on the label, like the nutrition facts box, that presents information consistently among products in the same category.

Chart 2-7

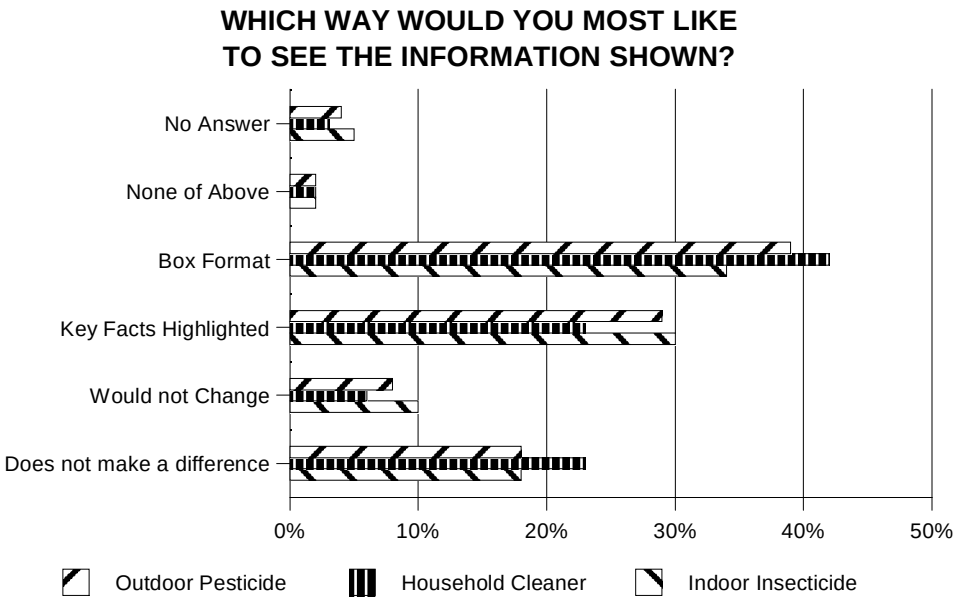


Table 2-14: Which Way Would You Most Like to See The Information Shown? (%)						
	Does not make a difference	**Would not Change**	**Key Facts High-lighted**	**Box Format**	**None of Above**	**No Answer**
Outdoor Pesticide n=846	18	8	29	39	2	4
Household Cleaner n=894	23	6	23	42	2	3
Indoor Insecticide n=889	18	10	30	34	2	5

(Base = All Respondents)

***Implications* Regarding Label Format**

A. Label comprehension can be improved by using standard formats.

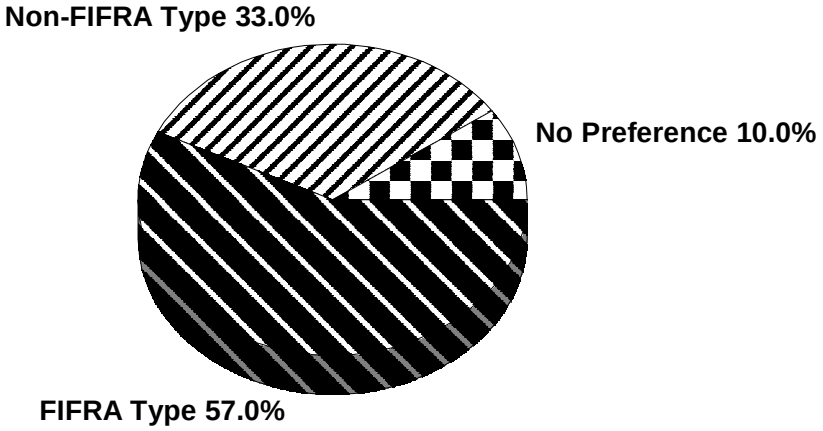
B. Ease of use encourages more frequent label reading.

Findings on Respondents' Preference for FIFRA versus Non-FIFRA Product Labels (Chart 2-8, Chart 2-9)[5]

20. Over half of the respondents in the household cleaner category preferred the FIFRA label (the type of label appearing on EPA registered products), including the overall label and the subparts on directions for use, where the product should not be used, effects on personal health, ingredients, storage, disposal, and emergency information, over the non-FIFRA label (labels appearing on non-registered, but similar, products).

Chart 2-8

WHICH OF THE TWO PRODUCT PACKAGES HAS THE TYPE OF INFORMATION YOU PREFER? (Household Cleaner)

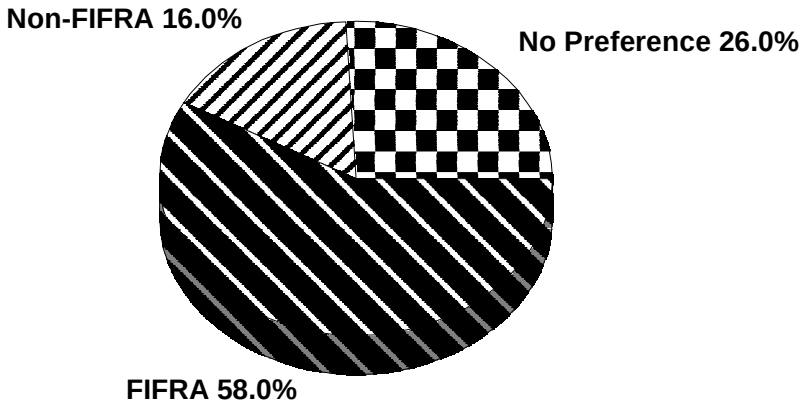


(Base = All Respondents)

[5] Non-FIFRA labels do not exist for the indoor insecticides and outdoor pesticides product categories.

Chart 2-9

FOR EACH TYPE OF INFORMATION, WHICH DO YOU PREFER REGARDING PRODUCT CONTENTS OR INGREDIENTS?



(Base = All Respondents)

<u>Implications</u> Regarding Respondents' Preferability for FIFRA versus Non-FIFRA Product Labels

A. Consumers desire specific types of information to appear on the product label.

<u>Findings</u> on Storage and Disposal Information (Chart 2-10, Chart 2-11, Chart 2-12, Table 2-15, Table 2-16, Table 2-17)

21. Outdoor pesticide and indoor insecticide users read the storage and disposal information significantly more than household cleaner respondents.

22. The most frequent reasons given for not reading storage and disposal information in the store was that it is "information they already know," followed by "just don't read it."

Chart 2-10

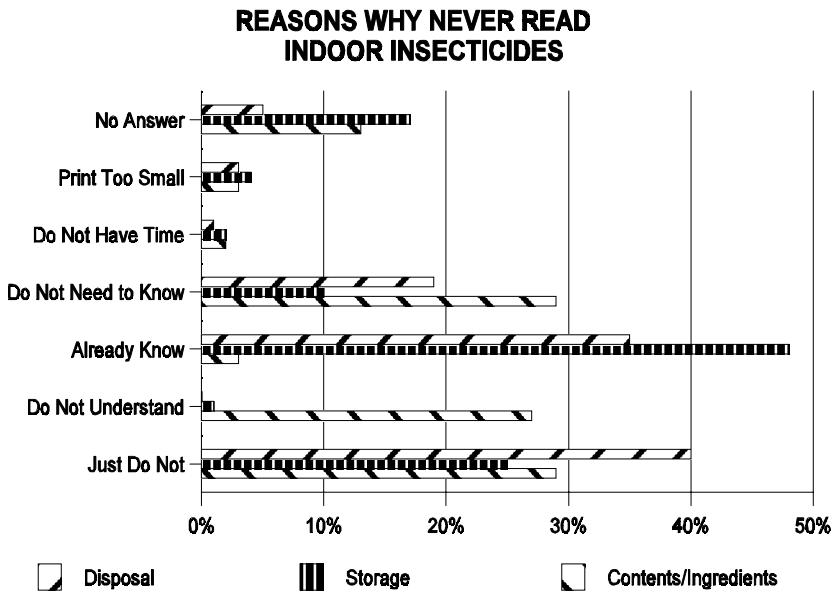


Table 2-15: Reasons Why Never Read Indoor Insecticides (%)							
	Just Do Not	Do Not Understand	Already Know	Do Not Need to Know	Do Not Have Time	Print Too Small	No Answer
Disposal (150)	40	0	35	19	1	3	5
Storage (102)	25	1	48	10	2	4	17
Contents/ Ingredients (200)	29	27	3	29	2	3	13

(Base = All Indoor Pesticide Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 889 Indoor Pesticide Respondents)

Chart 2-11

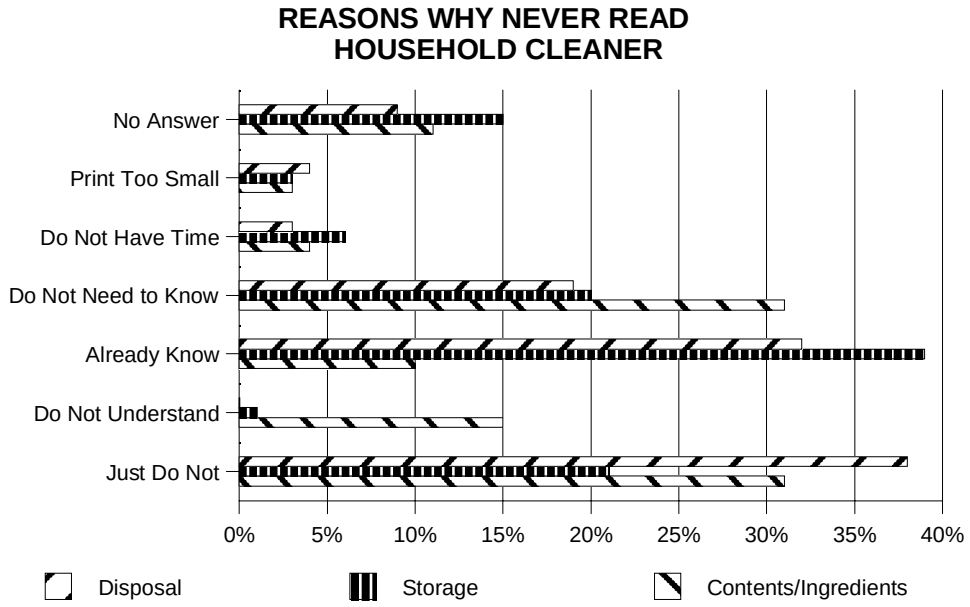


Table 2-16: Reasons Why Never Read Household Cleaner (%)							
	Just Do Not	Do Not Understand	Already Know	Do Not Need to Know	Do Not Have Time	Print Too Small	No Answer
Disposal (216)	38	0	32	19	3	4	9
Storage (131)	21	1	39	20	6	3	15
Contents/ Ingredients (201)	31	15	10	31	4	3	11

(Base = All Household Cleaner Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 894 Household Cleaner Respondents)

Chart 2-12

REASONS WHY NEVER READ OUTDOOR INSECTICIDES

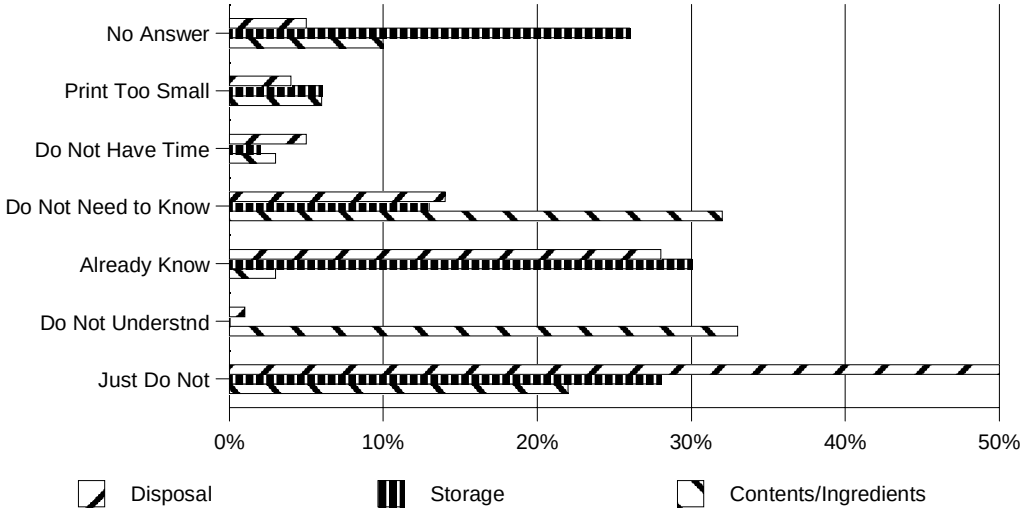


Table 2-17: Reasons Why Never Read Outdoor Insecticides (%)							
	Just Do Not	Do Not Understand	Already Know	Do Not Need to Know	Do Not Have Time	Print Too Small	No Answer
Disposal (93)	50	1	28	14	5	4	5
Storage (54)	28	0	30	13	2	6	26
Contents/ Ingredients (127)	22	33	3	32	3	6	10

(Base = All Outdoor Pesticide Respondents Who Said They Never Read Storage & Disposal, and Ingredients Information, Out of a Total of 846 Outdoor Pesticide Respondents)

23. The following represents the findings of an "open-ended" question regarding methods of disposal:[6]

- In all three categories, most respondents disposed of pesticides and cleaner products or packages in the trash;
- Household cleaner users recycled more frequently than those responding in the indoor and outdoor product categories;

[6]It is not known whether respondents were referring to the disposal of containers, unused product, or both.

- One in ten outdoor pesticide users disposed through special collections, which is more than users of indoor insecticides and cleaners;
- Less than 10% overall used special collections;
- Cleaner users found it acceptable to dispose of products/residues down the drain;
- Few users indicated that they disposed of products down the drain or diluted and used them up; and
- Virtually no consumers said they call the city or county for disposal advice;

24. There were no significant differences in responses from respondents in the states with strong household hazardous waste programs, versus those respondents from states that do not have strong household hazardous wastes programs.

Implications Regarding Storage and Disposal Information

A. Storage and disposal issues are of low priority and are not important to consumers.

Findings on Recycling Claims and Symbols (Chart 2-13, Table 2-18)

25. A high percentage of survey participants responded either "Not really sure" or gave an incorrect response for every question under each symbol. This was true even allowing for local recycling programs that might make some answers correct for panelists in those localities.

Chart 2-13

WHAT DO YOU THINK THIS ICON/PICTURE MEANS? (Plastic Material Code)*

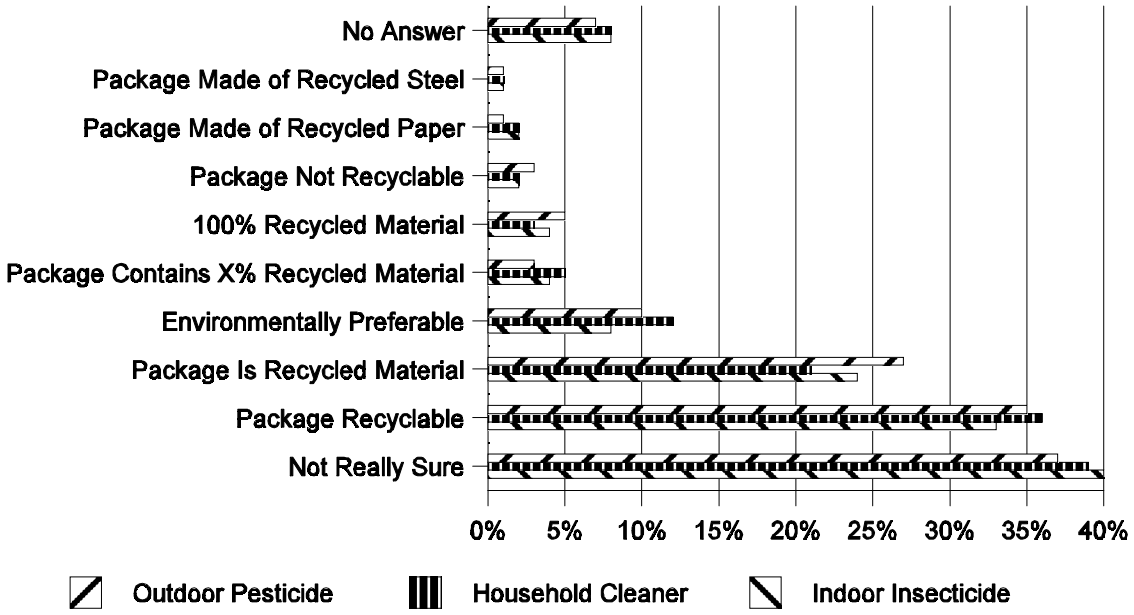


Table 2-18: What Do You Think This Icon/Picture Means?(%)*

	Not Really Sure	Package Recyclable	Package is Recycled Material	Environ-mentally Preferable	Package Contains X% Recycled Material
Outdoor Pesticide	37	35	27	10	3
Household Cleaner	39	36	21	12	5
Indoor Pesticide	40	33	24	8	4
	100% Recycled Material	**Package Not Recyclable**	**Package Made of Recycled Paper**	**Package Made of Recycled Steel**	**No Answer**
Outdoor Pesticide	5	3	1	1	7
Household Cleaner	3	2	2	1	8
Indoor Pesticide	4	2	2	1	8

(Base = All Respondents)

* Please refer to Question 9 on the mail questionnaire, Appendix 2-4

26. The symbols with descriptive language (e.g., "100% Recycled Paperboard") did provide some improvement in response accuracy. However, the correct response rate was less than 75% in every case and usually less than 60%.

27. For the HDPE question, there was no answer selection for the type of plastic from which the package was made. This confounded the interpretation of responses to that question, since respondents may have felt compelled to provide some other answer.

28. The demographic groups and other subgroups that demonstrated more capability for reading and understanding labels identified the correct responses for these symbols more frequently. These same consumers also tended to view products bearing these symbols as environmentally preferable.

***Implications* Regarding Recycling Claims and Symbols**

A. The effectiveness of the tested symbols in communicating with the general public is not great. However, this seems to be related to the complexity of the messages carried and the lack of a compelling motivator to learn.

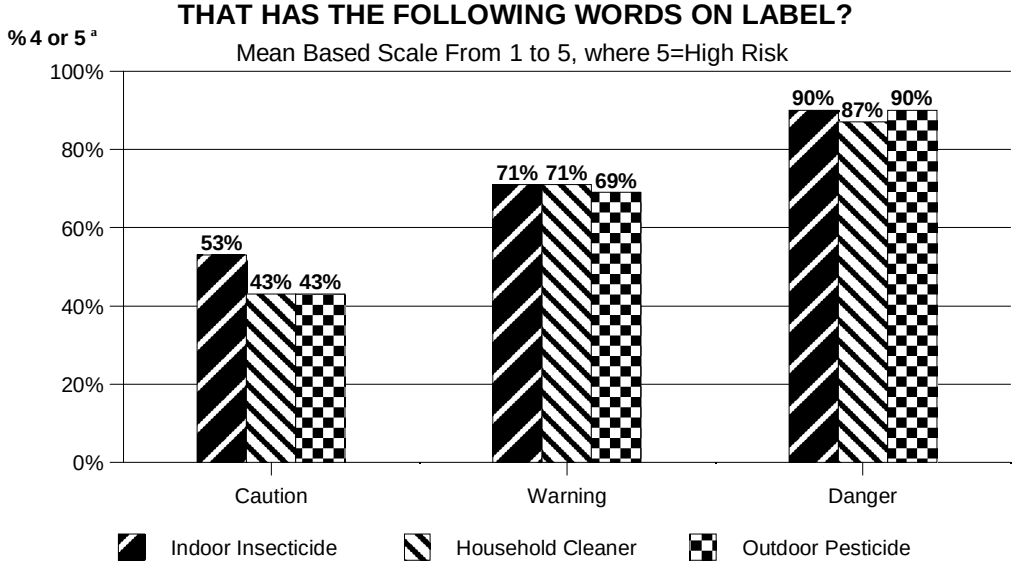
B. The positive correlation of comprehension with additional information in the symbol and inferred environmental benefit indicates that these are motivators for some consumers.

***Findings* on Product Label Signal Words (Chart 2-14, Chart 2-15, Chart 2-16)**

29. Respondents understood that the terms DANGER, WARNING, and CAUTION characterize a level of risk or personal hazard. They understood the three terms to be generally relative, with DANGER describing the highest risk, WARNING a medium risk, and CAUTION a lower risk. Respondents also perceived the range of risk described by the three words to start at a medium, rather than at a low, risk level. Even CAUTION was perceived by over half of the respondents to describe a lower to moderate level of risk, not a low risk.

Chart 2-14

WHAT LEVEL OF RISK DO YOU ASSOCIATE WITH A PRODUCT THAT HAS THE FOLLOWING WORDS ON LABEL?

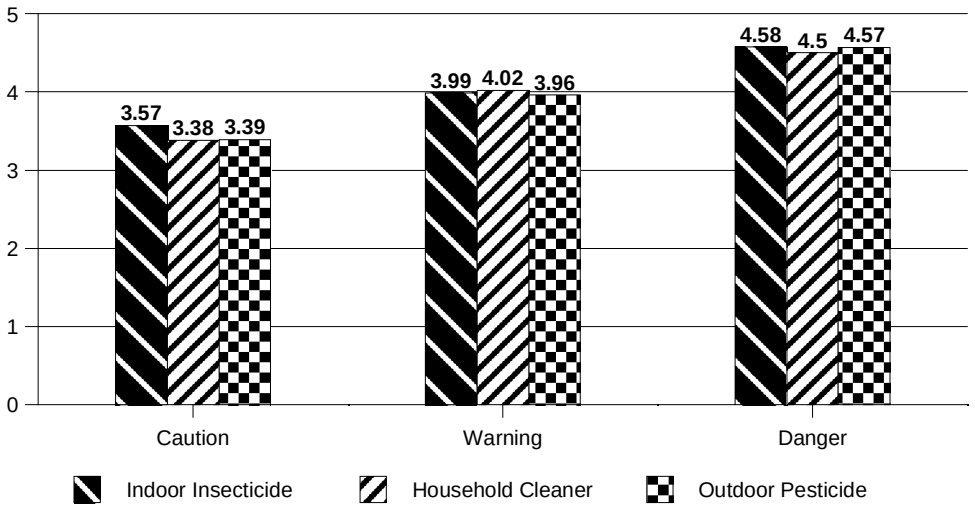


(Base = All Respondents)

a Percent of respondents who associated the signal words with a level of risk of four or five.

Chart 2-15

WHAT LEVEL OF RISK DO YOU ASSOCIATE WITH A PRODUCT THAT HAS THE FOLLOWING WORDS ON LABEL?
Mean Based Scale From 1 to 5, where 5=High Risk

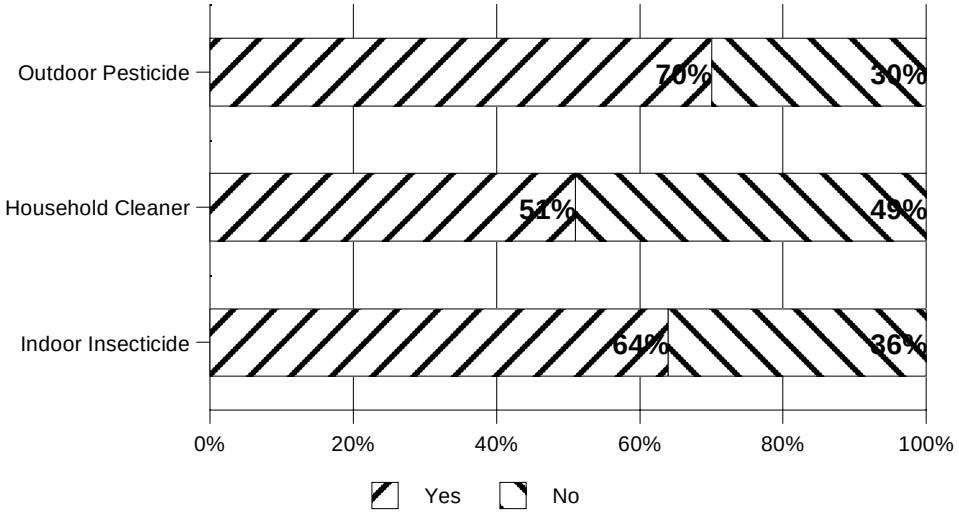


(Base = All Respondents)

30. None of the respondents mentioned the signal word as one of the things they use to determine the possible harmful effects of a product.

Chart 2-16

WHEN SHOPPING DO YOU LOOK ON PRODUCT PACKAGING FOR POSSIBLE HARMFUL EFFECTS?



(Base = All Respondents)

31. Just under half of respondents agreed either completely or somewhat that the words CAUTION, WARNING, and DANGER *on a product* mean the same thing to them.

***Implications* Regarding Signal Words on Product Labels**

A. Consumers do not understand the EPA's purpose for using signal words.

B. All three words convey some level of concern.

***Findings* on Respondents' Sources of Information and Education (Chart 2-17, Table 2-19)**

32. Besides the packaging, respondents identified the top sources to which they referred for product information to be (see Chart 2-17):

- Indoor insecticides — store displays, TV ads, friends/family/co-workers, product brochures, and magazine ads;
- Outdoor pesticides — store displays, product brochures, friends/family/co-workers, store salespersons, and TV ads; and
- Household cleaners — TV ads, friends/family/co-workers, store displays, magazine ads, product brochures;

33. One in five outdoor pesticide users would contact a university or county extension service for more information about a product.

Chart 2-17

BESIDES PACKAGING WHERE ELSE DO YOU GET INFORMATION ABOUT THE PRODUCTS YOU USE?

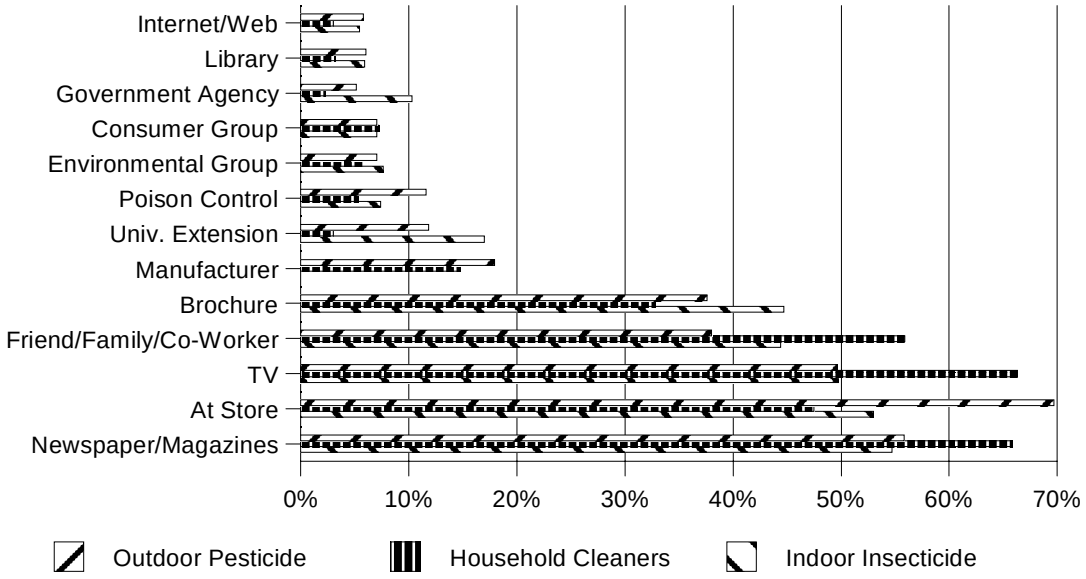


Table 2-19: Besides Packaging Where Else Do You Get Information About the Products You Use? (%)

	Newspapers/ Magazines	At Store	TV	Friend/ Family/ Coworker	Brochure	Manufacturer	University Extension
Outdoor Pesticide	54.7	69.7	49.1	44.4	44.7	16.8	17.0
Household Cleaner	65.8	47.5	66.3	55.9	32.7	14.7	3.0
Indoor Pesticide	55.8	53.0	49.6	38.0	37.6	17.9	11.8

	Poison Control	Environmental Group	Consumer Group	Govern-ment Agency	Library	Internet/ Web
Outdoor Pesticide	7.4	7.6	7.0	10.3	5.9	5.4
Household Cleaner	5.3	5.6	7.2	2.2	3.1	3.0
Indoor Pesticide	11.6	7.0	7.0	5.1	6.0	5.8

(Base = All Respondents)

***Implications* Regarding Respondents' Sources of Information and Education**

A. Consumer education and information efforts should design and deliver to the sources that people use.

B. Consumers expect to get information through traditional means, rather than seeking it through companies or the government.

C. Extension agents are also a target audience for the consumer education program.

***Findings* on Ingredients Information (Chart 2-18, Chart 2-19, Chart 2-20, Chart 2-21, Table 2-20)**

34. Approximately 90% of the telephone survey respondents were able to find and properly identify the ingredients/contents section of the label for all three product categories. The ability to find this section on the cleaners label, however, was significantly lower than on the other labels. Demographic subgroups did not show any surprising subgroup trends in their ability to find this label section.

35. After trying to find various sections during the phone survey, nearly 90% of the respondents stated that label information was positioned where they expected it to be. There were statistical differences among all categories, with satisfaction being greatest with outdoor pesticide and poorest with cleaners, although cleaners still received an 87.6% affirmative response. Of the specific requests for change, the highest was "ingredients should be on the back label." However, only 2 to 4% of all respondents voiced that request.

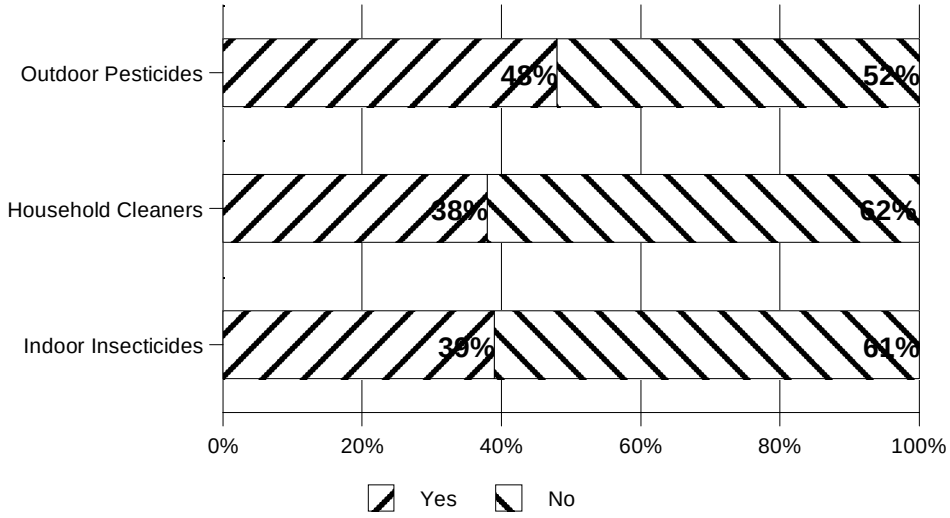
36. In all three product categories, of those respondents who never read the ingredients section (approximately 25% for all categories), an unusually high percentage of them did not read it because they did not understand the information in the section.

37. When asked if they look for ingredient information, approximately 40% responded affirmatively for the household cleaner and indoor insecticide product categories, but a statistically higher percentage (48%) answered "yes" in the outdoor pesticide category. The most prominent reason for reading this section was product comparison. However, approximately 15% claimed concern for health of a family member; this was higher (and the difference statistically significant) for indoor pesticide and household cleaners.

38. In all three product categories, few survey respondents specified a label change request, but the highest response (~3%) was "list all ingredients."

Chart 2-18

WHEN SHOPPING DO YOU LOOK FOR INFORMATION ABOUT THE INGREDIENTS?



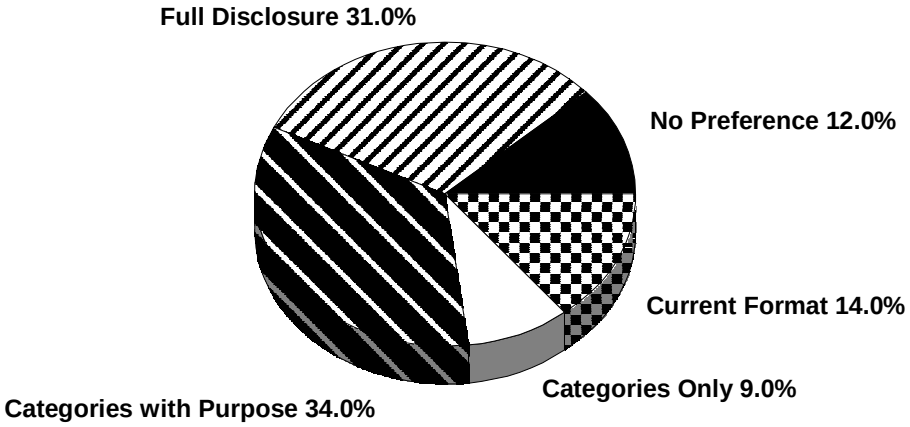
(Base = All Respondents)

Table 2-20: Why Do You Look for Information about Ingredients?		
Indoor Insecticide (n=343)	**Household Cleaner (n=338)**	**Outdoor Pesticide (n=408)**
I want to compare different products **66%**	I want to compare different products **64%**	I want to compare different products **57%**
I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **41%**	I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **47%**	I'm looking for the name of a specific ingredient **30%**
I'm looking for the name of a specific ingredient **38%**	I'm looking for the name of a specific ingredient **25%**	I or another household member want to avoid using certain chemicals because of allergies or other health related reasons **27%**
I want to know the scientific names of the ingredients **22%**	I want to know the scientific names of the ingredients **16%**	I want to know the scientific names of the ingredients **14%**

(Base = All Respondents Who Said They Look for Ingredient Information While Shopping)

Chart 2-19[a]

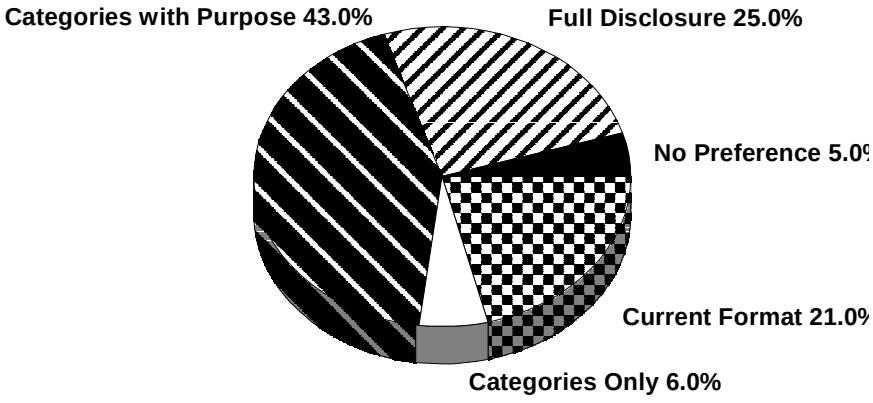
IF AN INDOOR INSECTICIDE LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

Chart 2-20[a]

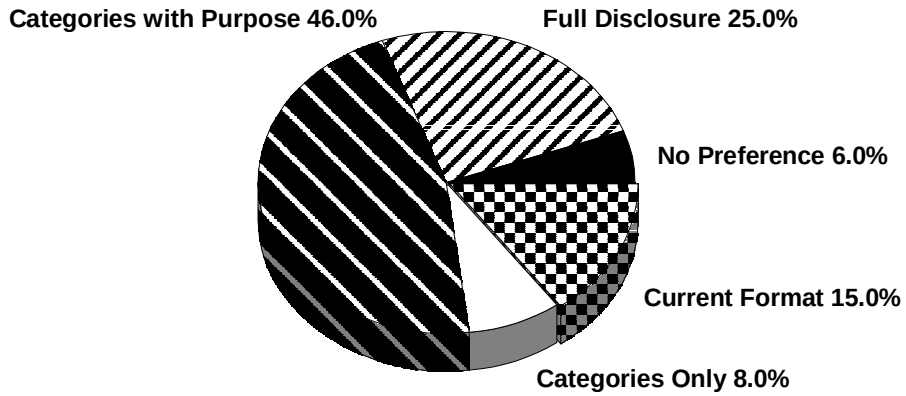
IF A HOUSEHOLD CLEANER LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

Chart 2-21[a]

IF AN OUTDOOR PESTICIDE LABEL WERE TO PROVIDE YOU WITH ADDITIONAL INFORMATION ABOUT INGREDIENTS, WHICH OF THE FOLLOWING WOULD YOU PREFER?



(Base = All Respondents)

[a] (For charts 2-19, 2-20, and 2-21) Please refer to Question 4c in the mail questionnaires in Appendix 2-4.

39. When given a choice of "ingredients" formats, three out of four respondents chose less than full disclosure (providing names and % of all ingredients). Options listing categories of ingredients along with a description of the purpose of the ingredients were preferred.

40. One in eight respondents used the ingredient statement to determine possible harmful effects from the ingredients listed.

41. In each of the three product categories, the phrase "other ingredients" was not fully understood.

42. "Ingredients" was ranked seventh among sections for importance, but well below the top six in all three product categories. It was also infrequently cited as a section to be found most easily.

43. The label preference for the ingredients section of the FIFRA vs. non-FIFRA cleaners label was comparable to the overall preference (58% favoring FIFRA) and the highest preference for FIFRA labeling of the individual sections tested.

***Implications* Regarding Ingredients Information on Product Labels**

A. Characteristics of the cleaner label make it somewhat more difficult to find the contents statement on that label. Cleaners are perceived to be inherently different than pesticides.

B. Consumers are likely to be satisfied with current placement of ingredients if the format and purpose of this section are clear.

C. Consumers do not know how to use the ingredients statement as currently presented.

D. Ingredients are easier to find and read in tabular form on the front label panel.

E. While a small group of people have a strong desire for full ingredient disclosure on labels, full disclosure is not required to meet the needs most consumers cite for ingredient information.

F. Ingredients are sometimes relied upon as a surrogate for hazard information.

***Findings* on Respondents' Attitude Toward Product Categories**

The following table captures reactions to consumer values in the attitude battery for each of the three product categories. (Please refer to question 11 in the indoor insecticide and outdoor pesticide mail questionnaires and question 12 in the household cleaner mail questionnaire in Appendix 2-4.)

ATTITUDE BATTERY KEY

- Number on top left of each cell indicates percentage of respondents who said they "agree completely" with the statements given.
- Number on top right of each cell indicates percentage of respondents who said they either "agree completely" or "agree somewhat" with the statements given.
- Number in the middle center of each cell indicates the deviation from the mean. The higher the deviation, the more strongly the attitude is held.
- [Brackets] indicate a negative deviation from the mean.

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories

Statement	Indoor Insecticide	Household Cleaner	Outdoor Pesticide
It is important that the packaging tell me how soon I/my children/pet can re-enter the treated area	-	-	65.4 93.5 1.56
Labels should say whether the product should not be used by or around pregnant women	60.2 89.5 1.46	53.5 85.2 1.34	56.2 87.2 1.38
The level of harmful effects of a product plays a role in deciding which product I purchase	49.2 82.3 1.26	35.2 77.0 1.05	44.0 81.7 1.19
It is important to know the minimum time before I can safely re-apply the product	38.2 86.0 1.20	-	-
I know how to use so there is no need to read the label	1.6 12.1 [1.02]	1.6 12.8 [0.86]	0.6 4.7 [1.31]
Using product safely is common sense	40.2 83.2 1.10	40.8 84.3 1.14	32.9 78.3 0.91
The more product I use at a time, the more effective it will be	1.3 8.4 [1.03]	0.8 8.4 [0.93]	0.7 7.5 [1.05]
No need to worry about storage if CR closure is used	4.1 14.7 [1.00]	7.6 19.1 [0.79]	3.6 11.0 [1.18]
Unused product should be disposed down the drain	4.6 11.1 [1.08]	20.3 46.6 0.23	1.6 3.0 [1.54]
I know what to recycle so I don't need to read the label	3.1 10.9 [0.91]	2.5 16.7 [0.66]	1.3 7.0 [1.08]

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories			
Statement	**Indoor Insecticide**	**Household Cleaner**	**Outdoor Pesticide**
I don't worry about chemicals in products	5.0 17.9 [0.92]	4.0 22.4 [0.66]	3.2 16.5 [0.94]
Would like information on long term effects on label	32.6 71.9 0.95	25.1 58.6 0.66	30.1 67.5 0.87
I always purchase the least harmful product	32.1 67.2 0.86	25.4 57.7 0.65	34.3 68.4 0.89
It is more important to me to know which ingredients might be more harmful than how effective they are	31.6 68.5 0.81	-	27.6 63.7 0.69
Peel open label has more information than flat label	-	-	26.6 65.5 0.80
Repeat as necessary means reapply as soon as see bugs	26.9 69.1 0.76	-	-
Overall satisfaction with current label information	15.2 68.7 0.73	11.4 64.8 0.64	10.1 64.4 0.62
I feel more comfortable if all ingredients are listed	26.9 52.8 0.58	24.4 55.2 0.60	27.4 57.9 0.63
Need more information on how much or how long to apply for desired result	17.9 57.9 0.56	-	-
For disposal, I rely more on experience than the label	5.3 26.4 [0.45]	6.6 35.4 [0.19]	1.9 17.7 [0.84]
For use, I rely more on experience than label	5.7 29.8 [0.31]	7.2 43.0 0.05	1.5 14.7 [0.86]
It is necessary to wrap in paper before disposal	17.3 35.6 0.14	5.7 16.1 [0.51]	19.3 47.9 0.46
Easy to find product information I need	12.7 59 .5 0.52	11.6 57.1 0.50	10 7 53.8 0.40
Information on the label is hard to understand	10 8 49.2 0.24	8.2 44.7 0.20	13.0 57.5 0.46
The government insures the product is safe to use	7.4 36.3 [0.10]	5.7 27.0 [0.32]	3.8 25.8 [0.40]

Table 2-21: Statements Regarding Respondents' Attitude Toward Product Categories			
Statement	**Indoor Insecticide**	**Household Cleaner**	**Outdoor Pesticide**
If I can buy in trusted store, the product must be safe to use	15.3 36.8 [0.08]	12.6 30.8 [0.22]	9.5 25.5 [0.40]
Fewer possible harmful effects means poorer performance	4.0 26.9 [0.24]	2.3 16.2 [0.48]	7.2 39.1 0.12
I read labels because a household member has allergy/ health problem	19.1 34.8 [0.15]	13.4 28.2 [0.34]	12.1 27.1 [0.35]
Disposal instructions on the label don't agree with my community	3.6 15.9 [0.29]	2.2 22.0 [0.12]	3.1 15.0 [0.31]
It's OK to open the peel open label in the store	-	-	23.7 48.4 0.29
The manufacturer assures product safety	11.6 38.4 0.03	10.2 38.3 [0.02]	6.3 29.8 [0.30]
I don't need complete listing of ingredient Information; I don't understand it anyway	12.4 41.7 [0.03]	8.3 37.3 [0.10]	8.4 34.9 [0.25]
Environmental or natural products often don't work well	6.0 40.0 0.08	3.5 29.6 [0.14]	6.0 36.2 0.03
CAUTION/ WARNING / DANGER all mean the same thing to me	16.2 48.4 0.07	15.9 49.0 0.11	13.9 44.0 [0.06]

<u>Findings</u> are as follows:

44. The highest response to attitude questions was for personal health and safety information and for instructions, especially those associated with safe use.

45. The consumer attitude toward household cleaners was different from attitudes toward the other two product categories. Significant differences were found from both indoor insecticides and outdoor pesticides in about 60% of the questions, and at least one other category in about 95% of the questions common to all categories.

46. In approximately two-thirds of the questions common to indoor insecticides and outdoor pesticides, there was a significant difference in attitudes between those two product categories.

47. The largest numerical differences in response were those for down the drain disposal, knowing what to recycle without label assistance, and greater reliance on experience than

label information for either disposal or use. In each case, respondents showed much less concern and/or greater familiarity for household cleaners.

48. Respondents understood that cleaners may be disposed of down the drain but indoor insecticides and outdoor pesticides should not be.

Implications Regarding Respondents' Attitudes Toward Product Categories

A. Household cleaners are perceived to be lower risk than pesticides in both use and disposal. Consumers are much more familiar with these products and are less likely to read the label for information.

B. Indoor insecticides are more familiar to respondents than outdoor pesticides so the comfort level in using those products is greater. However, the indoor usage is associated with greater concern about health effects.

C. Consumers want specific information on use of these products so they can assure personal, family, and pet safety while getting the desired performance.

Findings on Germ Killing Potential Information

49. Respondents were asked to rank, from high to low, the germ killing potential of each of the following terms: deodorizer, cleaner, sanitizer, anti-bacterial, and disinfectant. Respondents indicated the germ killing power of each individual term, and generally ranked all the terms in the correct order. The exception, however, was that respondents saw "anti-bacterial" as having more germ killing potential than either disinfectants or sanitizers, when, in fact, "anti-bacterial" refers to any product which kills bacteria.

50. When asked on the phone survey to define "disinfection," over 80% of respondents answered correctly.

Findings on Product Category Comparisons

51. The labels of household cleaners are less completely read than those of indoor insecticides and outdoor pesticides. Fewer consumers routinely read any section of the label on cleaners except the brand name.

52. For household cleaners label readers:

- Brand name is of higher importance, and
- Health and safety information of lower importance.

53. For all sections of the label, the indoor insecticide product label was found to be more effective in communicating the right amount of information with a greater specificity.

- *Active and Other Ingredients* — indoor insecticide better than both household cleaner and outdoor pesticide,
- *Directions for Use* — indoor insecticide better than outdoor pesticide and much better than cleaner,
- *Storage and Disposal* — outdoor pesticide worse than either indoor insecticide or household cleaner,
- *Precautionary Statements* — both indoor insecticide and outdoor pesticide better than household cleaner, and
- *First Aid* — both indoor insecticide and household cleaners better than outdoor pesticide.

54. About twice as many consumers had purchased cleaning products as had purchased either indoor insecticides or outdoor pesticides.

55. Many more consumers disposed of unwanted household cleaning products and/or containers by rinsing out, pouring down the drain, throwing in the trash unwrapped, and recycling. The indoor insecticide and outdoor pesticide products and containers were wrapped before being placed in trash much more than household cleaners were.

***Implications* Regarding Product Category Comparisons**

A. Household cleaners have greater familiarity and lower perceived risk for consumers. This results in more purchasing by brand name and less label reading. The most effective labels are on indoor insecticides, possibly because these labels are routinely read by consumers with a higher level of concern.